PrimeGrid's
321 Prime Search

On 13 March 2015 19:55:59 UTC, PrimeGrid's 321 Prime Search found another Mega Prime:

$$3*2^{11731850}-1$$

The prime is 3,531,640 digits long and will enter Chris Caldwell's "The Largest Known Primes Database" (http://primes.utm.edu/primes) ranked 12th overall. This is the largest known prime for the 3*2^n-1 form.

The discovery was made by Karsten Klopffleisch of Germany using an Intel(R) Core(TM) i7-2600K CPU @ 3.40GHz with 16 GB RAM running Linux. This computer took about 18 hours and 33 minutes to complete the primality test using LLR.

The prime was verified on 18 March 2015 18:17:44 UTC, by Thomas Gbenro of Germany using an Intel(R) Core(TM) i5-2500 CPU @ 3.30GHz with 4 GB RAM running Windows 7 Enterprise. This computer took about 12 hours and 16 minutes to complete the primality test using LLR. Thomas is a member of the BOINC@Frankfurt Team.

Credits for the discovery are as follows:

1. Karsten Klopffleisch (Germany), discoverer
2. PrimeGrid, et al.
3. Srsieve, sieving program developed by Geoff Reynolds
4. LLR, primality program developed by Jean Penné

Entry in "The Largest Know Primes Database" can be found here: http://primes.utm.edu/primes/page.php?id=119571

OpenPFGW, a primality program developed by Chris Nash & Jim Fougeron, was used to check for Fermat Number divisibility (including generalized and extended). For more information about Fermat and generalized Fermat Number divisors, please see Wilfrid Keller's sites:

- http://www.prothsearch.net/fermat.html
- http://www.prothsearch.net/GFNfacs.html

Using a single core PC would have taken decades to find this prime. So this timely discovery would not have been possible without the thousands of volunteers who contributed their spare CPU cycles. A special thanks to everyone who contributed their advice and/or computing power to the search.

The 321 Prime Search will continue to seek even larger primes. To join the search please visit PrimeGrid: http://www.primegrid.com

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About PrimeGrid

PrimeGrid is a distributed computing project, developed by Rytis Slatkevičius, Lennart Vogel, and John Blazek, which utilizes BOINC and PRPNet to search for primes. PrimeGrid's primary goal is to bring the excitement of prime finding to the "everyday" computer user. Simply download the software and let your computer do the rest. Participants can choose from a variety of prime forms to search. With a little patience, you may find a large or even record breaking prime.

BOINC

The Berkeley Open Infrastructure for Network Computing (BOINC) is a software platform for distributed computing using volunteered computer resources. It allows users to participate in multiple distributed computing projects through a single program. Currently BOINC is being developed by a team based at the University of California, Berkeley led by David Anderson.

This platform currently supports projects from biology to math to astronomy. For more information, please visit BOINC: http://boinc.berkeley.edu

PRPNet
PRPNet is a client/server application written by Mark Rodenkirch that is specifically designed to help find prime numbers of various forms. It is easily ported between various OS/hardware combinations. PRPNet does not run each PRP test itself, but relies on helper programs, such as LLR, PFGW, phrot, and genefer to do the work.

For more information, please visit PrimeGrid's PRPNet forum thread: http://www.primegrid.com/forum_thread.php?id=1215

For more information about PrimeGrid and a complete list of available prime search projects, please visit: http://www.primegrid.com